
Wisconsin Karner Blue Butterfly Habitat Conservation Plan and Environmental Impact Statement

Executive Summary

Background

This summary provides a synopsis of the *Wisconsin Statewide Karner Blue Butterfly Habitat Conservation Plan* (HCP) and the associated environmental impact statement (EIS). These two documents have been combined into a single document, with the HCP comprising Chapters I and II of the EIS and several appendices. This approach was taken so that those parties wishing to focus only on the proposed habitat conservation activities can easily extract that material from the overall document.

The HCP is an integral part of an application to the U.S. Fish and Wildlife Service (USFWS) for a statewide incidental take permit covering the federally endangered Karner blue butterfly (*Lycaeides melissa samuelis*). The Wisconsin Department of Natural Resources (DNR) is applying for the permit in collaboration with 26 other private and public partners (see Table 1; the "Wisconsin Karner Blue Butterfly HCP Partnership," hereafter referred to as "the partners"). The partners are proposing the HCP as a resource management strategy to assure the long-term sustainability of Karner blue butterfly habitat and the persistence of Karner blue butterflies on the Wisconsin landscape.

In addition to the partners, development of the HCP relied heavily on people representing various associations and organizations. These organizations have contributed extensive and continuous time and effort to the process and include groups such as the Sierra Club, the Wisconsin Audubon Council and the Wisconsin Woodland Owners Association. It is anticipated that these organizations, and others, will play an important role in HCP implementation and Karner blue butterfly conservation in Wisconsin.

The HCP describes broad-scale land conservation and outreach/education strategies. Efforts are focused on conservation both in the Karner blue butterfly's high potential habitat area and across the Karner blue butterfly's Wisconsin range, with implementation relying heavily on adaptive management principles. The efficacy of the plan is tied to partner commitments (outlined in legally-binding conservation agreements with the DNR) and a hierarchy of monitoring systems developed to assure the anticipated, positive results of proposed actions.

While the HCP specifically addresses only one species, the Karner blue butterfly, its focus on habitat management is designed to benefit numerous other species that rely on the rare habitats in which the butterfly occurs. Through a state consultation process, implementation of the HCP will

factor in considerations for other species listed under the Wisconsin endangered species laws.

The HCP was prepared by the DNR in collaboration with the partners and other participants. Because preparation, approval and implementation of the HCP are actions requiring environmental review, the DNR and the USFWS agreed to prepare a single environmental document (i.e. the EIS) that would comply with the requirements of both the Wisconsin and National Environmental Policy Acts (WEPA and NEPA), as well as other state and federal regulations. Both WEPA and NEPA are intended to help public officials make decisions that are based on an understanding of environmental consequences and to take actions that protect, restore and enhance the environment. Preparation of a joint document is encouraged under both WEPA and NEPA, thereby reducing paperwork and best using limited public resources, while ensuring broad public involvement.

Table 1. Wisconsin Karner Blue Butterfly HCP Partners

Industrial Forest Companies	Wisconsin State Agencies	County Forests
Consolidated Papers, Inc.	Dept. of Agriculture, Trade and	Burnett County
Georgia-Pacific Corp.	Consumer Protection	Clark County
Johnson Timber Co.	Dept. of Natural Resources	Eau Claire County
Thilmany	Dept. of Transportation	Jackson County
Wausau-Mosinee Paper Corp.		Juneau County
Wisconsin River Power Co.	Utilities	Monroe County
	Alliant	Washburn County
Trade Organization	ANR Pipeline Co.	Wood County
Wisconsin Paper Council	Lakehead Pipe Line Co.	
	Northern States Power Co.	
Non-Profit Conservation Organizations	NW Wisconsin Electric Co.	
	Polk-Burnett Electric Co-op.	
The Nature Conservancy	Wisconsin Gas Co.	
	Wisconsin Public Service Corp.	

The innovative approach to endangered resources conservation proposed in the HCP is designed to move regulated communities beyond compliance and into efforts to proactively apply conservation measures on the land while engaging in normal land management activities. The U.S. Congress, in establishing the incidental take permit provisions of the Endangered Species Act, expressed the hope that the provision would encourage creative partnerships between the public and private sectors and among governmental agencies in the interest of species and habitat conservation, as well as provide a framework to permit cooperation between the public and private sectors. Those goals are accomplished by the HCP, an effort that arose out of and has been developed through a solid and diverse grassroots effort.

The greatest numbers of Karner blue butterflies and some of the best Karner blue butterfly habitat currently occur in Wisconsin. Karner blue butterflies have been extirpated from Ontario, Maine, Pennsylvania, Massachusetts, New Jersey, Ohio and Iowa; appear to be extirpated in Illinois; and persist in only remnant populations in Minnesota, Indiana, New York and New Hampshire. Because of these disappearances and the relative abundance of this species' populations in Wisconsin and Michigan, Wisconsin plays an important role in protecting Karner blue butterflies.

The Karner Blue Butterfly in Wisconsin

Wisconsin supports the largest and most widespread Karner blue butterfly populations worldwide. More than 270 Karner blue butterfly occurrences are known from 23 counties (Table 2). Most of the occurrences can be grouped in about fifteen large population areas, and most of the larger populations are found on sizable contiguous acreages in central and northwest Wisconsin.

Table 2. Wisconsin Counties with Karner Blue Butterfly Occurrences

Burnett	Monroe	Waushara
Eau Claire	Wood	Waupaca
Clark	Juneau	Marquette
Jackson	Adams	Chippewa
Menominee	Portage	Barron
Oconto	Dunn	Polk
*Sauk	*Kenosha	Shawano
Green Lake	Outagamie	

* records in these counties have not been verified

Based on surveys from 1990-1997, the highest known Karner blue butterfly population levels occurring on public lands are found at the Crex Meadows and Fish Lake State Wildlife Areas in Burnett County, the Eau Claire and Jackson County Forests, the Black River State Forest in Jackson County, Fort McCoy in Monroe County, the Necedah National Wildlife Refuge in Juneau and Monroe Counties, the Sandhill State Wildlife Area in Wood County, and Hartman Creek State Park in Waupaca County.

Karner blue butterflies are found in close association with wild lupine (*Lupinus perennis*), the

only known host plant for their larvae. Natural habitats that Karner blue butterflies occupy include sandy pine and oak barrens, pine prairies, oak savannas and some lake shore dunes. Current Karner blue butterfly habitat in Wisconsin includes abandoned agricultural fields, mowed utility and road rights-of-way, managed forest lands, military training areas and bombing ranges and managed barrens.

Potential habitat at the specific site level can only occur where conditions exist to support wild lupine. Given the knowledge of certain ecological criteria relative to Karner blue butterflies such as the distribution of wild lupine, general soils information and climatic parameters, potential habitat is predictable (Fig. 2).

Butterflies that specialize on plants found primarily in early successional habitats track an ephemeral food supply that is dependent on ecosystem disturbances. For such species, suitable habitat can be a shifting and increasingly smaller fraction of a greater landscape mosaic that results in local species extinction events that are both frequent and inevitable. Karner blue butterflies appear to have all of these characteristics. As such, the availability -- or absence -- of suitable habitat mosaics will play a key role in the long-term survival of the species.

The Need for a Statewide Conservation Effort

While many extant Karner blue butterfly populations occur on public lands, it has become increasingly clear to conservation interests that species conservation cannot occur on public lands alone. There are simply not enough acres in public ownership to provide long-term stewardship. In addition, species like the Karner blue butterfly depend on active land management which results in the perpetuation of particular habitat types.

The amount of conservation that can be accomplished on private lands for which there are economic goals depends on landowner flexibility in time, space and financial strategy. In principle, the most intensive conservation measures for Karner blue butterflies are concentrated on public lands. However, the role of private lands cannot be underestimated. Large scale, multi-level conservation is best accomplished with statewide planning in which the participants accept various levels of responsibility for plan implementation. The *Wisconsin Statewide Karner Blue Butterfly HCP* was formulated with this concept in mind.

The HCP partners envision a *statewide* conservation effort that gains and incorporates the support of landowners and land users throughout Wisconsin. As the applicant for the incidental take permit, the DNR will administer the permit with the cooperation of all the partners, as well as other participants and cooperators. Regardless of their individual roles, each HCP partner has shown the capability and resolve to make significant contributions to the conservation effort through management practices, through public outreach, education and assistance programs, or through both management practices and public outreach and education. The 27 partners own or manage nearly two million acres of land in the state (Fig. 1) and have agreed to manage their

lands in the Karner blue butterfly's high potential range with conservation considerations. Individual partner roles and commitments for both management and outreach are described in each individual partner's conservation agreement ("Species and Habitat Conservation Agreement") with the DNR, in the HCP, or in the DNR's Implementing Agreement with the USFWS.

The Karner blue butterfly is adapted to barrens and other early successional habitats. Because the persistence of these habitats is disturbance-dependent, an important aspect of this HCP is to provide for land management regimes that assure a balance between habitat gain from disturbance and habitat loss from vegetational succession. Stopping land management activities which provide desirable disturbance would be detrimental to maintaining this balance. A conventional "do not touch" regulatory approach, therefore, is inappropriate for the particular considerations presented in the conservation of the Karner blue butterfly. Such an approach would discourage, in many cases, the maintenance of habitat and conservation of the species. Consequently, this statewide conservation program may be distinct in its approach and application.

As applied to statewide landowner involvement in conservation, a participation strategy has been developed to provide incentives for conservation through cooperative partnerships. It includes a review mechanism to ensure that implementation does not adversely affect the species in the long-term. Although outreach is intended to reach any and all parties with the potential to become involved in Karner blue butterfly conservation, geographical areas and activities associated with the greatest potential will be given greater outreach emphasis. For example, broad general efforts will be made statewide and greater efforts will be made in the Karner blue butterfly's high potential range (Fig. 2). The participation strategy also includes a notification system designed to inform landowners and users, where possible and feasible, of the opportunities presented under this HCP. Implementation of this strategy is intended to be at the county level, as much as possible, using county and town communication mechanisms and providing information and assistance locally.

Figure 1. HCP Partner Lands in Wisconsin Subject to Individual Conservation Agreements

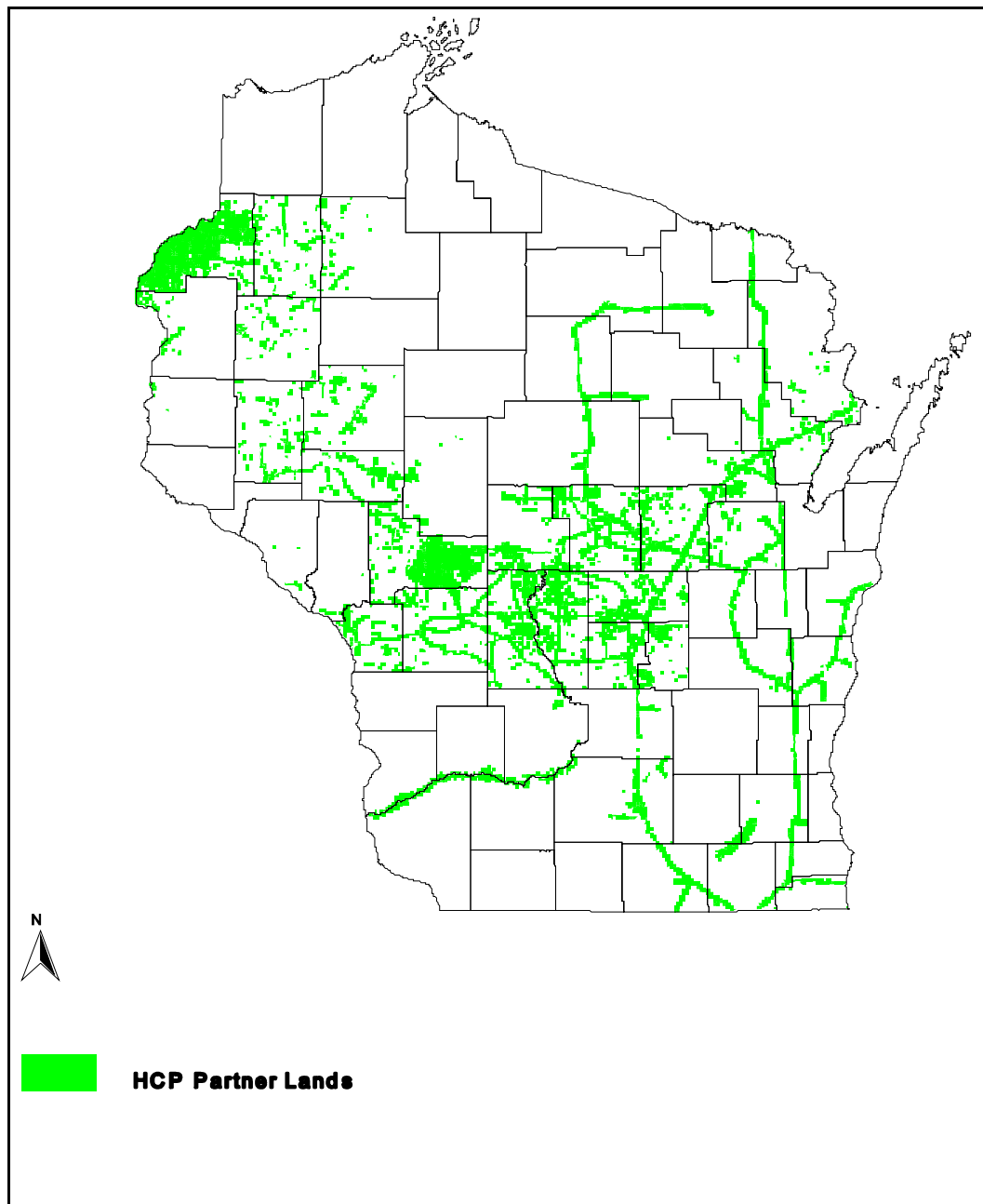
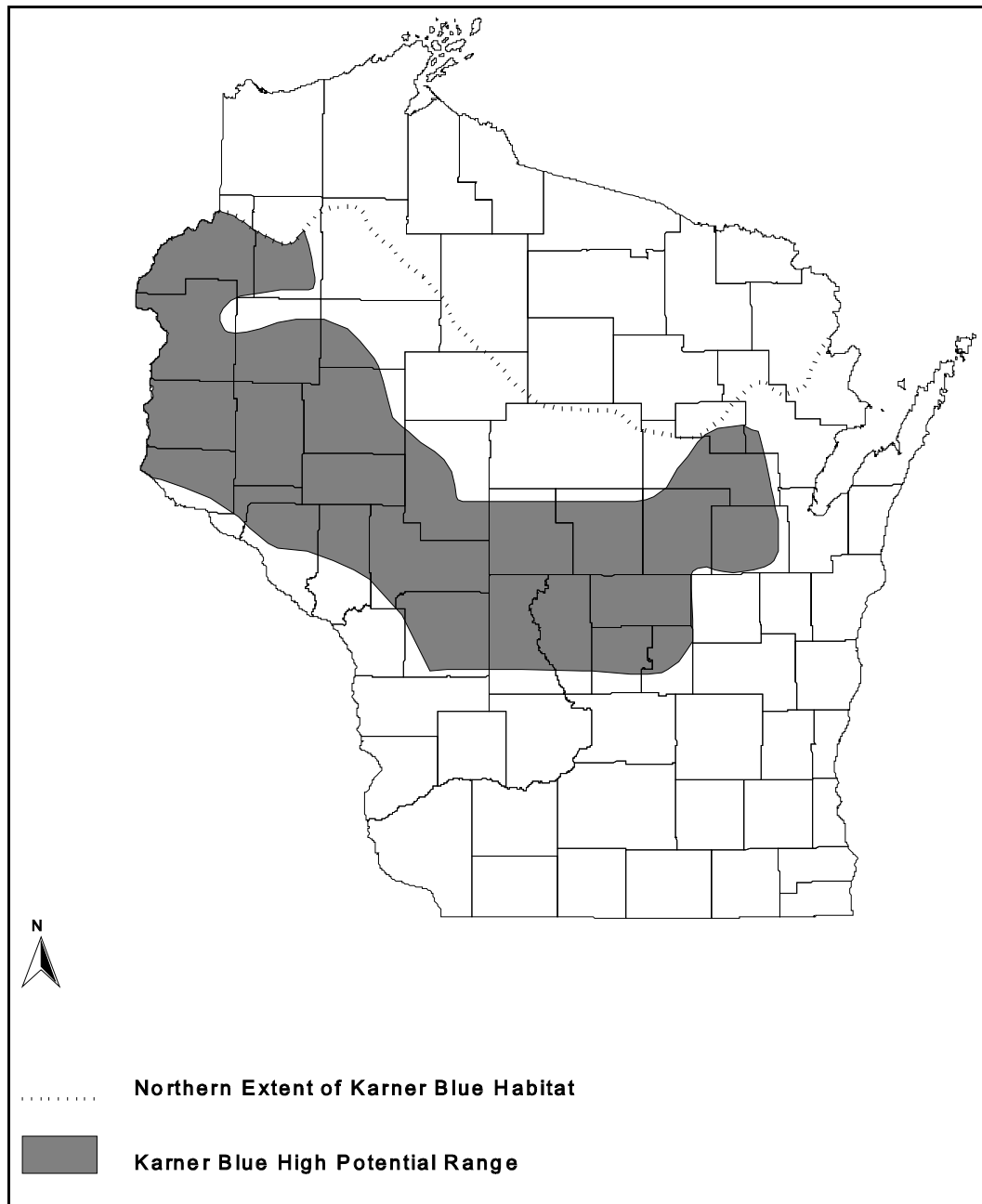


Figure 2. Northern Extent and High Potential Range of Karner Blue Butterfly in Wisconsin



Conservation Strategies

Insect conservation efforts are based on different premises than traditional vertebrate conservation efforts. The Karner blue butterfly, like most insect species, has adapted to survive by producing relatively large numbers of eggs and large populations, with short individual lifespans and frequent generation turnovers. Most of the Karner blue butterfly's life is spent in the egg and larval stages. Natural mortality rates during these immature life stages are much greater than mortality rates observed for vertebrate animals. The survival strategy of the Karner blue butterfly centers on the success of overall populations rather than individual organisms. To accommodate this strategy, a focus on habitat conservation and the maintenance of populations -- rather than individuals -- is key to butterfly preservation.

The long-term viability of Karner blue butterfly populations depends on habitat disturbance. Without periodic disturbance, natural woody succession shades out wild lupine and nectar plants and can passively eliminate Karner blue butterfly populations. Creation of new habitat to replace habitat lost to succession is therefore necessary. This reality underscores the need for managing landscapes for a dynamic, shifting mosaic of habitat and populations. Fortunately, many land management activities, such as those used in forest management and utility right-of-way maintenance, provide such disturbances.

There are two approaches being proposed in the HCP:

- 1) Management with consideration for Karner blue butterflies, and
- 2) Management to feature, protect or enhance Karner blue butterflies.

Management with consideration for Karner blue butterflies. This management category represents lands owned or managed by partners on which consideration for the Karner blue butterfly and its habitat will be incorporated into land management activities. Partners have committed to management with consideration for Karner blue butterflies on 227,492 acres in the Karner blue butterfly's high potential range. *The long term biological goal on these lands is that Karner blue butterfly habitat gains be equal to or exceed losses occurring through natural succession or otherwise.*

Management to feature, protect or enhance Karner blue butterflies. This management category represents lands that are owned or managed by partners on which one of the primary management goals is to feature the Karner blue butterfly habitat or the broader barrens community that includes it. Partners have committed 37,725 acres in the Karner blue butterfly's high potential range to this level of focus. As with the management with consideration category, *the long term biological goal on these lands is that butterfly habitat gains be equal to or exceed losses occurring through natural succession or otherwise. Additional measures are taken however, to promote viable Karner blue butterfly populations despite potential economic costs.*

Overall, the partners own and maintain 2.03 million acres in Wisconsin. Of these 2.03 million acres, 265,217 acres in the high potential range will be subject to the management categories described above. Incorporating conservation into management activities on lands in the high potential range focuses efforts where they can have the most conservation benefit (the high potential range includes the Karner blue butterfly's documented range, as well as a significant buffer around known Karner blue butterfly occurrences).

Land Management Activities Affecting Karner Blue Butterfly

The partners engage in a variety of activities on the lands they own and manage. These activities have been grouped into five categories for the purposes of developing conservation strategies:

Forest Management

- * Timber harvesting
- * Stand improvement
- * Prescribed fire
- * Forest roads
- * Forest regeneration

Transportation Management

- * Road development
- * Road maintenance
- * Vegetation control

Barrens, Prairie and Savanna Management

- * Prescribed fire
- * Mechanical treatment
- * Herbicide treatment
- * Native plant propagation
- * Grazing

Utility Right-of-Way Management

- * Construction of electric transmission lines
- * Operations and maintenance of electric transmission lines
- * Vegetation control
- * Construction of new pipelines and underground transmission lines
- * Operations and maintenance of pipelines

Recreational Management

- * Intensive construction
- * Less intensive construction
- * Maintenance
- * Public use

Participation Strategy and Additional Conservation Measures

The Karner blue butterfly is dependent on periodic disturbance regimes or management programs designed to assure that the habitat is not lost to natural succession. Therefore, this conservation plan must be species-driven and designed to encourage habitat disturbance rather than traditional preservation. To accomplish a disturbance and management regime statewide, this HCP has been developed to include all Wisconsin landowners and users that might affect the species, regardless of land size and use. The HCP creates a broad statewide partnership in conservation while

realizing the limitation on resources to accomplish its objectives. The strategy seeks to incorporate conservation into the working landscape. The HCP is built upon the extensive land ownership and conservation commitments of the 27 partners identified in this HCP, but seeks to go beyond those partners to include the assistance and participation of other landowners, nonprofit groups, environmental and industrial organizations and a variety of governmental units.

The HCP, with its biological approach, focuses efforts on geographic areas and activities which provide the highest potential to safeguard or enhance Karner blue butterfly habitat. The strategy goes beyond the initial 27 partners and seeks to reach all landowners and users, but will vary in approach and process. The HCP's inclusion strategy therefore includes:

1. A category of non-voluntary participants that must formally apply for partnership to the DNR and receive a Certificate of Inclusion from the USFWS, because of the value their land and activities provide to conservation of the species;
2. An opportunity for voluntary participants that receive incidental take permit coverage, without further process, so as to encourage land management activities that may benefit the species;
3. An extensive public outreach and education plan to reach all landowners and land users, and others, to describe the effort and encourage their cooperation and participation in this conservation effort; and
4. A review of the participation strategy after three years of implementation to determine its effectiveness, with the option of modifying it should it prove to need changes to provide the anticipated conservation.

Through this HCP, the partnership intends to achieve the endangered species conservation goals while protecting the economic interests of non-federal landowners through this increasing partnership statewide. Strategies that support Karner blue butterfly conservation included in the HCP are as follows:

Outreach and Education. Efforts will be made to create awareness by potential mandatory participants, such as county and town highway departments, railroads, electric utilities and others. HCP partners will also encourage Karner blue butterfly conservation by those in the voluntary segment, such as the small private landowners and those in the agricultural community.

Federal Recovery. In 1994, the USFWS appointed a federal recovery team for the Karner blue butterfly, which at the time of this writing has produced a working draft recovery plan. Representatives of three Wisconsin Statewide Karner Blue Butterfly HCP partners participated in the development of the draft recovery plan: the DNR, Consolidated Papers,

Inc. and Georgia-Pacific Corporation.

Two Wisconsin HCP Partners, the DNR and The Nature Conservancy, intend to participate in federal recovery efforts, as funding allows. In addition, Jackson and Eau Claire County Forests (also HCP partners), will consider participating in recovery, pending approval by their respective county boards.

Adaptive Management

The long-term viability of Karner blue butterfly populations depends on habitat disturbance. Without periodic disturbance, natural woody succession shades out wild lupine and nectar plants, eliminating Karner blue butterfly habitat. Given this reality, the absence of management activities that create beneficial disturbances is ultimately detrimental to Karner blue butterflies. Halting ongoing management activities to wait until all unanswered questions about Karner blue butterflies are answered is impractical. Therefore, this HCP will be implemented using adaptive management.

Adaptive management is a formal, structured approach to dealing with uncertainty in natural resources management, using the experience of management and the results of research as an ongoing feedback loop for continuous improvement. Adaptive approaches to management recognize that the answers to all management questions are not known and that the information necessary to formulate answers is often unavailable. Adaptive management also includes, by definition, a commitment to change management practices when determined appropriate. The HCP partners have committed to using adaptive management.

The adaptive management approach, in part, relies on the management activities and practices that are already in place and for which there is no existing data or obvious reasons that suggest a need for change. This approach allows for up-front conservation measures to be used during routine operations and as management practices are implemented on the landscape. However, under this approach, carefully designed monitoring and research procedures are initiated to determine if there are any effects of the management practices. The HCP includes three types of monitoring to support adaptive management:

- 1) Self-monitoring by each partner to observe the effects of management activities,
- 2) Effectiveness monitoring which is statewide and is designed to measure the positive results intended by the HCP, and
- 3) Compliance auditing which will be a continual process to assure the partners are fulfilling the obligations of their conservation agreements.

Research. Several Karner blue butterfly research efforts are already underway or have recently

been completed. A summary of each activity is included in the HCP:

- * Effects of Herbicides on the Development of Karner Blue Butterfly Eggs and Larvae Development
- * Effects of Herbicide on Seed Germination (wild lupine) and Development
- * Effects of Herbicide Application on Lupine and Select Nectar Plants
- * Dispersal Research (Karner blue butterflies)

Impacts of HCP Implementation

The biological, environmental and socio-economic impacts associated with implementing this HCP were assessed. Direct and indirect (i.e. secondary) and short- and long-term (i.e. cumulative) effects were analyzed. Conclusions drawn from the impact analyses are summarized here.

Biological Impacts. The Karner blue butterfly requires active management, thus a "do nothing" approach would result in a net loss of habitat. HCP partner goals, as identified in the Articles of Partnership and the HCP, are maintenance of habitat and Karner blue butterfly abundance. The HCP represents a proactive approach to Karner blue butterfly conservation and is expected to have a significant positive impact on the species.

Throughout the high-potential range, monitoring will determine whether or not changes in habitat and Karner blue butterfly numbers are occurring. Commitments to adaptive management and research have been and are being made to address any significant declines, if they should occur. The adaptive management strategy allows land use activities to continue, while assuring protection of the Karner blue butterfly.

On a statewide basis, biological communities will not be significantly affected by HCP implementation. There may be a reduction in the total number of acres of mature forests and a corresponding increase in the number of acres of prairie, barrens, savanna and young forest stands. The loss of forest acreage will be insignificant given the extensive forest coverage in the state. The increase in the less abundant prairie, barrens and savanna communities can be construed as beneficial to biological diversity given the historic acreage losses of these community types.

Federal and state-listed endangered and threatened species will not be significantly affected by the proposed management activities. In general, the federally-listed species found in Wisconsin are not common within the affected environment. State-listed species that occur in sites planned for Karner blue butterfly management will likely benefit or not be affected at all from the management.

Environmental Effects. Implementation of the HCP and the activities outlined in it will not

significantly affect geological or soil resources, hydrology or drainage, climate or weather, or air or water quality conditions in the affected environment. While individual activities included in the HCP may have local effects, the cumulative impacts of these effects on a statewide basis will not be significant. Many of these local impacts can be eliminated, minimized, or mitigated through the application of best management practices. In addition, any impacts to the above mentioned resources associated with the HCP would exist whether or not an incidental take permit was issued.

Socio-economic Impacts. Human population and demographic trends will not likely be affected by the issuance of an incidental take permit or implementation of the HCP. Population growth and demographic patterns are anticipated to follow recent trends whether or not an incidental take permit is issued. Similarly, employment and recreational trends will not likely be affected by HCP implementation.

The Wisconsin Karner Blue Butterfly HCP will not likely affect household income. However, issuance of an incidental take permit and implementation of the HCP will likely have economic benefits for HCP partners. Issuance of the incidental take permit would help partners maintain the value of property included in the HCP. In addition, local communities will likely benefit from the secondary effects of the partners' economic land use activities. This is particularly true in counties where forest products and utility industries are a major segment of the economy. Without an incidental take permit, partners would have to discontinue or modify planned management activities on some lands or risk fines for illegal take. An incidental take permit would allow transportation projects to move forward without costly delays or realignments due to the presence of Karner blue butterflies.

Management of state and county forest properties will continue to be subject to public involvement. In many cases, these properties will provide renewed opportunities for citizens to experience barrens, prairie and savanna habitats and their respective faunas, including the Karner blue butterfly.

Alternatives to a Statewide HCP

During the course of the development of the Wisconsin Karner Blue Butterfly HCP, the partners and participants considered a number of alternatives to the statewide plan. Three alternatives are discussed briefly below.

No Action Alternative. Under the No Action Alternative, a section 10(a)(1)(B) permit would not be issued at the state level and projects involving take would be prohibited under section 9 of the ESA. Such an approach would potentially subject landowners and local governments to civil and criminal penalties for unauthorized take of Karner blue butterflies. Furthermore, occupied Karner blue butterfly habitat would most likely not be maintained or improved since this alternative precludes modification of occupied Karner blue butterfly habitat. The combination of multiple

ownership and intermittent Karner blue habitat patterns encourages irregular development that is efficient for neither land use activities nor conservation. Natural plant succession would occur in occupied habitat eventually making it unsuitable for the Karner blue butterfly.

Government and landowners would attempt to continue their respective land use activities and development projects on an individual, project-by-project basis under the terms and conditions imposed by presently existing local, state and federal plans, statutes and regulations. Existing incidental take options available to individual landowners and various levels of government -- section 7 consultations and section 10 HCPs -- would continue to be employed on a case-by-case basis. Individual landowners would prepare their own project-specific HCPs to obtain an incidental take permit.

Inherent problems with this alternative include habitat loss, regulation enforcement, development obstruction and lack of coordination. Since this alternative would not allow modification of occupied Karner blue butterfly habitat anywhere in the state without a federal permit, more existing habitat would evolve into closed canopy communities by natural succession. The burden of proof as to whether or not take occurs from development is on the enforcement agency (USFWS). Because of the scope of the duty, and the location and life history of the species, enforcement is likely to be ineffective in preventing incidental take. Projects and planned management activities within areas that contain habitat would be subject to lengthy analysis on a case-by-case basis. With no unified conservation program, the cumulative effects of management activities could not be considered, and significant negative impacts to Karner blue butterflies could still occur. A coordinated adaptive management approach would not be formulated and implemented.

HCP with Mitigation Banking. This alternative proposes that impacts to the Karner blue butterfly and its habitat from land management activities be mitigated through permanent habitat maintenance, restoration, or creation.

In Wisconsin, land development and use is concentrated on private lands. Since private land represents approximately 85 percent of both the state total and the 21 counties comprising the Karner blue butterfly documented range, there are hundreds of thousands of landowners. Remaining Karner blue butterfly habitat on private lands is already highly fragmented and heavily impacted by direct and indirect effects of development and land management practices. Establishing mitigation banks and still ensuring connectivity between habitats on so many parcels would be nearly impossible. Applying intensive conservation or mitigation measures to private lands would be very costly, of uncertain outcome, and likely to be ineffective in the long-term conservation of the Karner blue butterfly. A strategy focusing mitigation exclusively on scattered state and county public land holdings would be even less able to provide the necessary connectivity for the fragmented habitat. To be meaningful, mitigation banking would have to be at such a scale (in acres of habitat managed) that the continuation of other uses and management practices would be severely limited. Again, a strategy recognizing how the ownership of Karner

blue butterfly habitat is divided and distributed is more likely to be effective.

Mitigation on lands outside of Wisconsin was not considered feasible because of the current Karner blue butterfly range. The USFWS also indicated such mitigation would not be acceptable because it would likely preclude meaningful Karner blue butterfly conservation.

Reduced Scope HCP Alternative. Under this alternative, only a subset of the partners (e.g., the DNR and county forests) would prepare an HCP and apply for an incidental take permit. Under this alternative, conservation efforts would be focused on public resource lands. Legal land use activities and development projects on the remaining partners' lands would proceed on an individual, project-by-project basis under the terms and conditions imposed by presently existing local, state and federal plans, statutes and regulations (i.e. existing incidental take options available to landowners would continue to be employed).

While the majority of Karner blue butterfly element occurrences are located on public lands, there are many others that are located on private lands. There are also significant acreages of potential habitat on private land, which could potentially be managed for Karner blue butterfly conservation. The lack of inclusion of such lands would complicate management over the broader landscape (e.g., many of the connections between public land holdings would be absent).

The majority of public lands are managed for multiple purposes (e.g., timber harvest, wildlife habitat, recreation, etc.). Focusing an HCP on public lands would require extensive, and often intensive, commitments to maintaining Karner blue butterfly habitat on specific properties. Such emphasis on a single species could preclude some other uses and would, quite possibly, be contrary to the uses identified through public participation and planning processes used in the management of these properties.

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